

## CLAIMS

1. A power supply apparatus comprising:

5 a system linkage inverter for inversely transforming DC electric power into AC electric power and supplying said AC electric power to a load connected to a system power supply;

a dummy load connected parallel to said load through a power device:

a circuit connected to said load and said system power supply for detecting a system voltage and current;

10 a calculating unit for calculating an electric power flow with respect to the system power supply based on the system voltage and current detected by said circuit, and

a control unit for turning on and off the power device for said dummy load based on a state value of the electric power flow calculated by said calculating unit.

15 2. A power supply apparatus according to claim 1, wherein said calculating comprises:

detecting a system voltage value and a current value flowing into and out from the system power supply to the load by the circuit connected to the load and the system power supply for detecting a system voltage and current;

20 calculating an electric power value flowing into and out from the system power supply to the load in every constant period from the system voltage value and the current value; and

calculating the state value of the electric power flow by successively accumulating electric power values calculated in respective constant periods.

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3. A power supply apparatus according to claim 2, wherein the power device for said dummy load is turned on when the state value of the electric power flow becomes zero or a preset value.

4. A power supply apparatus according to claim 1, wherein a forward power flow in an amount commensurate with an accumulated value of reverse power flows when the power device for said dummy load is turned off, is produced by turning on the power device for said dummy load.

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5. A power supply apparatus according to claim 2, wherein said constant period comprises AC one period or half period.

6. A power supply apparatus according to claim 1, wherein said power device  
10 comprises an SSR (Solid State Relay).

7. A power supply apparatus according to claim 1, wherein said power device comprises a thyristor.

8. A power supply apparatus according to claim 1, wherein said power device  
15 comprises a relay.

9. A power supply apparatus according to claim 1, wherein said calculating unit calculates an electric power value in every constant period, and turns on said power device  
20 to supply electric power to said dummy load in a next period after an accumulated value of electric power values reaches a predetermined level.

10. A power supply apparatus according to claim 1, wherein said power device and said dummy load are connected between a filter for removing harmonic components  
25 contained in an output of the inverter and the system power supply or the load.

11. A power supply apparatus according to claim 1, further comprising a storage unit for storing data of an electric power value calculated by said calculating unit.

12. A power supply apparatus according to claim 1, further comprising means for outputting data of an electric power value calculated by said calculating unit to an external apparatus by way of a signal or communications.

5           13. A power supply apparatus according to claim 1, wherein a control process for turning on and off said dummy load can be set for being performed or not by setting means such as a switch, software, or the like.